GETTING ACQUAINTED WITH YOUR SPARK PLUGS

The Forty-third of a Series of Articles by an Expert for the Automobile Owner.

By WALTER SHIELDS.

In the early days of motoring the average driver believed that two of the most unreliable parts of the car were the tires and the spark plugs, but hap-obtained. the tires and the spark plugs, but happily years of development have brought
these to a state of efficiency comparable with that of the engine. Spark
plugs, with which we are concerned in
this article, are in this advanced day
cheap and reliable, and it is not uncommon to hear of a set of plugs giving
15,000 miles' continuous service without
even so much as being cleaned.

Though a small part of the car, the
spark plug has had to be developed with
the same rapidity as the engine. It is
the plug which accepts the current from
the high tension wire attached to the
magneto or other ignition unit and permagneto or other ignition unit and permagneto or other ignition unit and per-

the high tension wire attached to the magneto or other ignition unit and permits the spark to jump across a gap formed by the electrodes. The current, which is of high voltage approximating 20,000, flows through the centre electrode, and because of its high voltage jumps from this electrode to another which is attached to the shell of the piug, which in turn is fastened into the ping, which in turn is fastened into the cylinder, thus becoming grounded. The gap, or space between the centre electrode and the grounded one must be of such length as not to offer too much resistance to current flow, otherwise there will be no spark. It is clear to see that if the gap is one inch wide there will be no flow and the chances of flow are increased as the gap is shortened. If shortened too much then the heat of the resulting spark is insufficient. The gap length usually is made .015 of an inch, but in some engines a wider gap can be used. In high compression engines the gap will have to be shorter than in low compression for the reason that the greater compression makes it still more difficult for the spark to flow.

Decause designers of engines now make provision for circulating water around the plug. In this way some heat is kept away from the points and consequently from the rest of the plug.

The average owner finds that an open end plug is better for ordinary work than a closed end because the latter is liable to trouble from short circuiting by oil. When the oil is splashed over the plug end it gets into the gap, completes the circuit, and thus the current will flow across without sparking. When this trouble is encountered there is nothing to do but cut down the oil supply. If the pistons or cylinders are worn, then one will have to be satisfied with the misfiring.

Plugs of course are made in certain plumplug, which in turn is fastened into the because designers of engines now make If might be mentioned here that drivers sizes: that is, there are a certain num-often make the error of assuming that ber of threads cut in the shell, and these a spark plug tested in air will work well threads are not all alke, though there

often make the error of assuming that a spark plug tested in air will work well under compression. Sometimes it is quite possible to make a plug fire in air, but when installed in the ergine it will fall because of the additional resistance of the compressed gas.

Spark plugs are made in numerous forms and employ all sorts of materials for insulating the centre electrode. The difficulty lies in getting a plug which will stand up under the high heat and retain compression. The multipark spark plug of other days permitted gas leakage in numerous places, though gaskets were used. In time the heat and pressure forced the parts to separate slightly, resulting in leakage. Also the

BRONX AUTOMOBILE SHOW.

These distinguished Chinese officials are in the head of a consequence to current would not pass down through the current would not pass down through the current would not pass down through the current which made the early plugs a source of continue to these troubles and to others which made the early plugs a source of continue are two broad classes of spart plugs named by the type of insulators. Definite decision has been reached to head of the minus and the minus in th accomplishing the double function of keeping the plug cool and admitting more air for economy and power. There are two more interesting types which may be taken from almost 100 offstandard ones. In one of these there are two centre electrodes, one of which is attached to the magneto and the other to another source of current, so that it is possible to get one spark from either battery or magneto or two sparks if both sources of current are thrown into the circuit. In the other odd type there is a small window at the top of the plug through which the spark may be seen. Under this window is a secondary gap over which the spark must jump in order to reach the regular gap. In another type called the series plug the plug is connected in series with an

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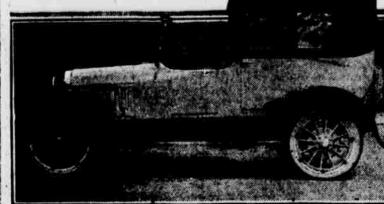
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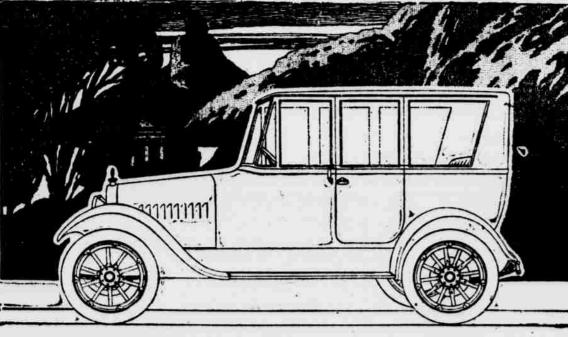
White (Ford).

From the number of inquiries already received regarding the big show the com-

Chinese acmy and navy respectively agreed that road conditions in Caina hold no terrors for a Quad. They intimated that the Nash Quad would be DEMAND FOR CARS CONTINUES.

White (Ford).

When the number of inquiries already exceived regarding the hig show the combination of the savilable space already has been decided by the savilable space already has been decided himself of the form of the savilable space already has been decided himself and the construction of the savilable space already has been decided himself and the construction of the savilable space already has been decided himself and the construction of the savilable space already has been decided himself and the construction of the savilable space already has been decided by the savilable space already has tied sisters of Englands and France, are



Only a few, of course, could afford a Christmas present "for her" such as one of the enclosed Chalmers carriages. But where among jewelry shops, furriers, furniture establishments and the like could you locate a gift of greater service, or one that would be more deeply enjoyed than a Chalmers? It is an equipage the like of which for beauty, for sterling worth, has not been surpassed in our day. Incidentally the prices are about \$1000 lower than those of its contemporaries.

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SOME TENDENCIES IN 1918 VEHICLES

Cars in Palace Show Will Emphasize War Time Move for Fuel Economy.

By CHARLES E. DURYKA. With the approach of the opening of

the 1918 automobile show at Grand Central Palace, to be held January 5 to 12, all automobile "fens" are wondering what will be the leading and interesting features. That the exhibition will have a more or less military spirit pervading it goes without saving. But in what ways this will manifest itself we cannot foresee. This is our first war time automobile show. The motor vehicle business had not wen the attention of the great public in 1898 when we had the Spanish American war on our hands; hence that period offers no criterion to guide us. In fact, the acceptance of the ganolene car as the proper one dates back only about sixteen years, but we may draw some conclusions by commandate of the state of the st may draw some conclusions by com parison with the products of that time The splendid work being done by

needed: water pumps that only pump tops, and this results in appreciable savwhen hot, and similar devices are now ing of fuel.

Company of New York and Chicago, until a few weeks ago. This car has severed with being used to keep the cylinders work.

The passenger cars are not topiess known the world over as one of the plorunning condition when I left same Sur-

being used to keep the cylinders working hot and yet prevent them from becoming too hot.

Improvements are being made also in the various details of the car body and frame, and even the tires in their relation of fuel economy. Tires, now more than ever before, are pliable and flexible and the sort that roll over the road castly: "highly resilient," they are called. Frames are deeper and lighter for a given strength. Bodies are being made better and lighter, The tendency to make wheels larger each year seems to have expended itself and with the increased number of good roads wheels of

National Touring Sedan a Year 'Round Car.



Many novel features are to be found in this model, which is now being displayed at the salesroom of the Poertner Motor Car Company, Fifty-sixth street and Broadway. The body can be divided into separate compartments by the use of glass in the doors and other sections. This type can be castly

medium size save cost and weight and become the standard with "sixes." "RICK" PRAISES THE HUDSON, are quite satisfactory.

Famous Racer Who Drove Gen. Pershing Now an Avlator.

and speedy. All these and many other evidences of progress and practicability will be seen in larger number than ever in the past because of to-day's demand ago to drive for Gen. Pershing, found for the practical rather than the orna- the life too quiet. He secured a transfer to the aviation section and is now learning how to fly.

In a letter to an official of the Hud-

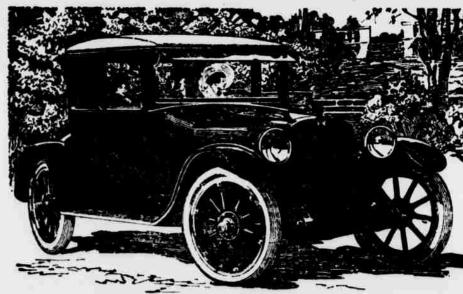
Jesse Froehlich Says Government
Should Use Mechanics.

"The American Automobile Association is to be congratulated for stopping automobile racing until the close of the war," says Jesse Froehlich, vice-president of the Times Square Auto Supply Company of New York and Chicago.

In a letter to an official of the Hudson factory Rickenbacker tells of some experiences he has had with a Hudson Super Six. He writes:

"After leaving the States I enlisted as private chauffeur for Gen. Pershing, but upon my arrival in France I realized that it was not the position I desired. Consequently I transferred to the avaition section, and it was here that I found the Hudson Super Six, which I drow until a few weeks ago. This car has

CHANDLER



(Illustrating the Chandler Four-Passenger Convertible Coupe)

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could "get" for it. Chandler price has always been established at the lowest possible figure based on cost of production and a fair profit.

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